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Forages

Quite a year to try and harvest top quality forages. This year more than ever, you will need to test your forages, feed to maximize forage intake and fine tune your rations.

Congratulations to the John and Marcia Donald of Triple D Farm and their family in New Sharon on winning not only the forage contest at Maine Farm days, but the Green Pastures Award for the state of Maine. Their high level of milk production under organic management is a tribute to the high quality forages they harvest and their management skills.

Corn silage harvest

This year, predicting when to harvest corn silage will be more difficult than ever. To ensure a vigorous and successful bacterial fermentation the dry matter (DM) content of the whole corn plant material at harvest is very important. The proper DM content for optimum fermentation is between 30% and 40%. If corn silage is wetter than 70% moisture (30% DM) excessive fermentation acids can reduce palatability and feed intake. Wetter silage is more likely to result in effluent loss, which is a huge potential environmental concern. Additionally, wet silage results in lowering dry matter intake. If corn silage is drier than 40% DM there might not be enough sugars available for adequate fermentation increasing DM losses and resulting in heating at feed-out. In addition, if corn silage is too dry, kernels become hard and starch digestibility is reduced along with vitamins A and E.

Determining the whole plant DM at the beginning and during harvest is the most critical and important harvest management practice to implement. Dry matter can be determined using a Koster™ moisture tester or microwave oven.

Obviously, relative maturity of your corn varieties plays a role in the time you begin chopping and the order in which you chop your fields. Another issue is that corn moisture may vary in a single field depending on if it is on a knoll or in a swale. If any of you viewed the corn silage variety trials at Farm Days, that was very obvious in a year like this one.

So how do you measure moisture in your corn plants?

Procedure for measuring plant moisture

1. Sample 3 to 5 plants in a row that are well bordered and representative.
2. Put in plastic bag,
3. Keep plants cool,
4. Chop as quickly as possible
5. Measure moisture using by drying using a Koster tester, microwave, or convection oven

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To chop your samples for drying, use your chopper if possible. We have found that brush chippers with hammers do not accurately give you a sample. If you have a brush chipper with knives, it will work.

If you are using an oven or a microwave, the moisture content is determined by using the following calculation

$$\text{Moisture content (\%)} = (\text{wet weight} - \text{dry weight}) / \text{wet weight} \times 100$$

A publication for using a microwave for moisture testing can be obtained at:

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2308&context=extensionhist>

Depending on the weather and temperature, you can expect corn to dry at a rate of 0.4-0.5% points per day in September. Remember that significant rains will cause moisture content to increase.

So what moisture level do you want to chop at?

Silo Structure	Ideal Moisture Content	Kernel Milk Stage “Trigger”
	%	%
Horizontal bunker	70 to 65	80
Bag	70 to 60	80
Upright concrete stave	65 to 60	60
Upright oxygen limiting	50 to 60	40
“Trigger”: kernel milk stage to begin checking silage moisture		

Another complicating factor that I see happening this year is the variability within a field in maturity and moisture content. Joe Lauer from Univ. of Wisconsin suggests that producers should begin chopping when the majority of the plants (>50%) are at the correct moisture for good fermentation.

What about chopping height? I think this year, all bets lean towards chopping at a height of 4-6 inches to maximize forage yield.

Cover crops

Many producers are seeing the benefits of cover crops in corn fields. Nutrient retention, improved weed control the following year and of course decreased soil erosion. The catch...to establish good cover, winter grain crops like winter rye should be sown in mid to late September. Most cover crops sown in October do not provide sufficient cover and nutrient uptake to be beneficial and may not survive the winter.

Cover crops need to be sown in a way that provides some soil incorporation. Some producers drill the seed after harvest, while other spin on the seed and use some sort of harrow to provide some level of incorporation. Seeding rates should be about 2 bushels per acre or about 120 pounds per acre for rye, wheat or triticale. If you use triticale or wheat, you might want to consider harvesting the cover crop in late May as a forage crop before planting corn. Oats could also be used as a cover crop, but will die over the winter.

Last spring, we trialed killing the cover crop with herbicide and no-tilled a corn crop into the dying cover crop with great success. If you want more information about this technique to save time, money, fuel and soil... please give me a call at 1-800-287-1426 or email at richardk@umext.maine.edu We will be doing more of this research as part of a SARE grant in Waldo County.